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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/607,017	06/29/2000	Chiyoaki Iijima	9319S0073COA	1371

7590 06/18/2003  
Harness Dickey & Pierce PLC  
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EXAMINER

AKKAPEDDI, PRASAD R

ART UNIT PAPER NUMBER

2871

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/607,017

Applicant(s)

IIJIMA, CHIYOAKI

Examiner

Prasad R Akkapeddi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 22-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 6) ☐ Other:

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/03/2003 has been entered.

### ***Claim Objections***

2. Claims 22, 30 and 32 objected to because of the following informalities: minor spelling corrections are needed. Replace 'a least' with 'at least'. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 22-25, 27 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (Taniguchi) (U.S. Patent No. 6,099,134).

As to claims 22, 30 and 32: Taniguchi discloses a display device comprising: a polarization axis varying device (liquid crystal), a first polarizing splitter device (27) disposed on one side of the polarization axis varying device

and which transmits a light ray component linearly polarized in a first direction while reflecting or absorbing a light ray component linearly polarized in a predetermined direction different from the first direction; a second polarizing splitter device (23), disposed on the other side of said polarization axis varying device and which reflects a light ray component linearly polarized in a second direction while transmitting a light ray component linearly polarized in a predetermined direction different from the second direction; a lighting device (1) disposed on the side of the second polarizing splitter device (23) opposite to the polarization axis varying device (liquid crystal) and a light reflective device (4), disposed on the side of the lighting device (1) opposite to the second polarizing splitter device (23); wherein the lighting device has a number of dimples and projections (16 and 17 in Fig. 28C) on a surface thereof on the viewer's side of the lighting device opposite to the light reflective device, and the surface also serving as a light diffusing plate diffusing (14) and reflecting a light ray coming in from the second polarizing splitter device (23), while outputting a light ray toward the second polarizing splitter device (23).

Taniguchi discloses all the elements claimed in the instant claim. However, Taniguchi does not explicitly disclose the specific tracing of the paths of the light rays as described in the instant claims, also Taniguchi does not call the liquid crystal display device as a polarization axis varying device. However, it is obvious to an ordinary person skilled in the art at the time the invention was made, to trace the light rays and see explicitly that Taniguchi's device does in

fact follow the paths as described in the instant claims due to the fact that the polarizing splitting devices are both reflective and transmissive and such devices does polarize the incoming light and the liquid crystal material polarizes the light and acts as a polarization axis varying device. Hence these features are inherent to the device.

As to claims 23-25, 27 and 31: Taniguchi discloses that the lighting device transmits a light ray coming in from the side of the surface provided with a number of dimples or projections toward the light reflective device, while transmitting a light ray coming in from the light reflective device toward the side of the surface provided with a number of dimples or projections (see Figs. 28C and 34), the light reflective device (4) will emit any ray that impinges on the surface from the light source, including a color ray, if the source emits a color ray. Taniguchi also discloses a light diffusing device (18), disposed between the second polarizing splitter device (23) and the lighting device (1) also serving as a light diffusing plate (Fig. 28C) and (col. 22, lines 1-25). Taniguchi also discloses a reflector (4) on the side of the lighting apparatus (1) opposite to the surface including the light diffuser (18), wherein the lighting apparatus comprises a light source (1) and a substantially transparent light guide (2).

Taniguchi discloses all the elements claimed in the instant claim. However, Taniguchi does not explicitly disclose the specific tracing of the paths of the light rays as described in the instant claims. However, it is obvious to an ordinary person skilled in the art at the time the invention was made, to trace the

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light rays and see explicitly that Taniguchi's device does in fact follow the paths as described in the instant claim due to the fact that the polarizing splitting devices are both reflective and transmissive and such devices does polarize the incoming light. Hence these features are inherent to the device.

5. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Broer et al. (Broer) (U.S. Patent No. 6,359,670).

a. Taniguchi does not disclose a third polarizing splitter device. However, Broer in disclosing a liquid crystal display device discloses a third polarizing splitter device (9) disposed between the lighting device and the light diffusing device (as shown in Fig. 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the third polarizing splitting device between the lighting device and the light diffusing in the LCD device of Taniguchi to pass or reflect linearly polarized light (col. 1, lines 58-60).

6. Claims 26 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Winston et al. (Winston) (U.S. Patent No. 5,528,720).

Taniguchi does not disclose a light exit angle control device between the second polarizing splitter device (23) and the lighting device (1). However, Winston discloses a LCD device that comprises a light exit angle control device (246) between the lighting device (217) and the second polarizing splitter device (312) as shown in Figs. 12P and 30A. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt

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the light exit angle control device as disclosed by Winston to the LCD device of Taniguchi to provide improved light illumination over a controlled angular range of output to the viewer (col. 1, lines 51-52).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.



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June 12, 2003



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